

Palliative Radiation Therapy: A Primer

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Southwest Veterinary Oncology, PLLC



Oral malignant melanoma of the right mandible prior to treatment.



Same patient with oral malignant melanoma one week after the end of palliative radiation therapy (no other treatments given).

What is palliative radiation therapy?

PRT is a medical treatment using radiation therapy that is designed to reduce the severity of clinical signs due to a neoplastic disease and/or slow disease progression. It is also known as coarse fractionation/short course radiation.

When is palliative radiation indicated?

PRT is indicated when surgery or definitive radiation therapy is not an option due to any of the following: extensive nature or location of disease, poor prognosis for long-term survival, concurrent medical issues, and/or financial/personal constraints of owners. PRT can be used on any type of cancer/painful tumor in any anatomic location. Most commonly, PRT is utilized for palliation of pain due to bone, nasal, oral, spinal, and anal tumors, as well as localized lymphoma.

What is the purpose of PRT?

The goal of PRT is to improve quality of life and decrease clinical signs caused by a tumor. It does not attempt a cure of the tumor/disease. It is not, by definition, intended to extend survival, but it often does by improving quality of life and delaying the need for humane euthanasia. Likewise, it is not intended to achieve a complete response (ie: eradication of entire tumor burden), but many tumors will show partial responses.

Realistic goals are important when considering PRT. The primary goal of PRT is to improve the patient's quality of life by causing a decrease in tumor-associated clinical signs. It will usually also temporarily shrink the tumor, and slow or temporarily halt tumor growth. Common outcomes include a decrease in pain and inflammation, decrease in bleeding and ulceration of necrotic or infected tumors, a decrease or cessation of epistaxis, as well as an increase in mobility, improved neurologic function, activity levels, appetite and overall quality of life.

How do treatments work?

PRT protocols are designed to give fewer treatments using large doses of radiation with each treatment. This type of protocol results in decreased pain and inflammation although the underlying mechanism of pain relief is not fully understood. This protocol also results in a decrease in early/acute radiation side effects. 85-90% of animals undergoing PRT will have no radiation side effects at all. The 10-15% of patients that do develop early side effects will have a mild erythema or mucositis, depending on tumor location. These side effects will resolve with supportive care in 7-10 days and are usually self limiting. Due to the nature of the diseases being treated, late/chronic radiation side effects that may occur 6 months or more after radiation are not a realistic concern. Therefore, PRT maximizes the immediate benefits of radiation therapy with minimal side effects.

What are the advantages and disadvantages of PRT?

Advantages of PRT include:

- ◆ A rapid onset of relief of clinical signs: 80-90% of patients will experience improvement within 5-10 days of beginning therapy
- ◆ Minimally invasive for the patient: no/mild early side effects and only a few days in the hospital for treatments (no overnight stays needed)
- ◆ It is less of a financial burden than aggressive therapy: average cost for a full course of PRT at SVO is \$1700-2100

Disadvantages of PRT:

- ◆ Not an aggressive attempt at long-term control of the tumor, which potentially results in shorter survivals than with definitive therapy.

What is a typical treatment protocol?

There is variation in the published literature and practitioner preference. Historically, treatment consists of one fraction (dose) of 6-9 Gy (unit of radiation) once weekly for 2-4 weeks. More recent protocols use five fractions of 4 Gy once daily for five consecutive days. This is the protocol that we use most frequently at SVO as it seems to give the quickest pain relief with the longest duration of effect.

What is the protocol at Southwest Veterinary Oncology?

Typically, treatment is for 5 consecutive days on a Monday through Friday basis. This results in the quickest onset of pain relief, often by the end of treatment. Other protocols, if indicated (travel considerations, anesthesia risks), include once weekly treatment for 2-4 weeks; and for non-surgical oral malignant melanoma, 4 total doses of 8 Gy are given once weekly for four weeks. Treatments will include daily drop off in the morning, anesthesia and treatment, and then the patient can go home in the evening.

Are palliative and definitive therapies mutually exclusive?

Even if palliative radiation works well, definitive treatment is not then an option due to the large doses of radiation that have already been delivered to the tissues. However, if a patient achieves a good clinical response for 2-3 months duration (or longer), re-treatment with another round of palliative radiation can be considered. If an animal responds well to palliative radiation the first time, they usually respond well the second time although the duration of improvement is less. Also, a palliative course can be considered if disease recurs after definitive therapy of any kind.

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Meet our Author

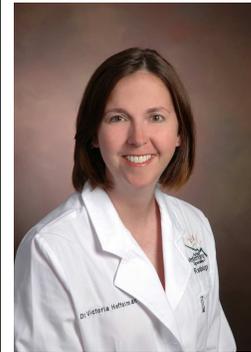
Jennifer J. Arthur, DVM, *Diplomate ACVR (Radiation Oncology)*

Dr. Arthur received her Bachelor of Arts in English in 1995 and her Bachelor of Science in Biology in 1999. In 2004, she graduated with high honors from Ross University where she received her doctorate of veterinary medicine. She spent her clinical year at Texas A&M and also completed a short volunteer internship at Alaska Sea Life Center. She then headed to Kansas State University for an internship in small animal medicine and surgery. Dr. Arthur completed her residency in Radiation Oncology at North Carolina State University and worked at a private specialty practice in Atlanta after obtaining board certification in 2007. She joined Southwest Veterinary Oncology, PLLC in 2010.

The 'take-home' message on palliative radiation therapy:

1. While not a cure, PRT can dramatically improve a patient's quality of life (and, therefore, survival)
2. If it's cancer and it hurts in a specific area, PRT may help (any kind of cancer, anywhere in the body)
3. PRT results in decreased clinical signs in 80-90% of patients within 5-10 days of starting treatment
4. Average duration of clinical response is 2-4 months, (wide range)
5. May be able to repeat treatment course in the future (two, even three times)
6. Even if the tumor does not drastically shrink, patients can have incredible improvements in quality of life

If you have further questions regarding radiation therapy or have specific questions regarding a patient, please feel free to contact Dr. Jennifer Arthur at Southwest Veterinary Oncology, PLLC in Gilbert at 480-635-1110, opt 2 or Dr. Mary K. Klein at Southern Arizona Specialty Center in Tucson at 520-888-3177.



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 - ◆ Rhinoscopy
- Endocrine disorders
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- Blood and plasma transfusions
- Gastrointestinal diseases
- Genitourinary disorders
- Hepatic diseases
- Infectious diseases
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- Immune-mediated diseases
- Nutrition consultations
- Oxygen therapy and critical care
- Pancreatic diseases
- Pulmonary diseases
- Renal disease
- Respiratory diseases
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- Ultrasonography
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Cardiology

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- Electrocardiogram (ECG)
- Chest Radiographs
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- Thoracic surgery
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